

REMARKS

This application is a rule 53(b) continuation of parent application no 09/658,321. Claim numbers 1-20 in this continuation application correspond to claims 16-35 in the parent application.

In the Office Action dated August 26, 2003 for the parent application, Examiner Nguyen stated that claims 21-22, 27 and 29-30 have been withdrawn from consideration as being directed to a non-elected invention. Those claims are being prosecuted separately as a divisional application under serial no 10/359,230. Also in the parent application, claim 17 was cancelled. Accordingly, Applicant has cancelled corresponding claims 2, 6-7, 12, and 14-15 from this continuation application.

The specification and drawings provided include all of the corrections that were made in the parent application. No new matter has been added.

In the Office Action dated August 26, 2003 for the parent application, all pending claims were rejected as being anticipated or obvious over one or more of the following references: Muller (US Patent No. 4515445); Ellis (US Patent No. 5035476); Yonezawa (Japanese reference No. 5-288992); Krause (German reference No. 26 31 551); and Lanni (US Patent No. 5801881).

Although claim 1 (claim 16 in parent application) has been amended, Applicant would like to respond to the rejections to the extent that the rejections apply to the pending claims as amended. Claim 1 is now amended to recite the additional claim language:

“wherein the mirror is placed in a back focal plane (pupil plane) of said at least one objective”;

“wherein a transmitted excitation light and said fluorescent radiation are reflected by said mirror, but only said reflected fluorescent radiation along with said fluorescent radiation coming directly from the specimen are reimaged on the detector without the reflected excitation light”.

This amendment is supported by Figure 2 at Ref. Num. 21, 22 and 23 wherein

it is shown that the mirror 23 is placed in the **back focal plane of objective 21** which is the pupil plane of the microscope. The fluorescent radiation coming directly from the specimen 19 (reflected at the specimen) is imaged on the detector 17. The excitation light and fluorescent light transmitted through the specimen 19 are reflected by the mirror 23 which is positioned at the back focal plane. While both the excitation light and fluorescent light are reflected back through the specimen 19 again, only the fluorescent light passes through the diaphragm 16 to be imaged on the detector 17 without the excitation light. Support for the amendments is also found at page 8 of the specification, see lines 15-17 for example.

By contrast, in Mueller et al, U.S. 4,515,445, as seen in Figure 1, three objective lenses (1, 15, 16) are used and significantly the reflector 17 is used to reimage the transmitted light is placed in an intermediate image plane. This has a couple of disadvantages in comparison to having the reflector located in the back focal plane. Three highly corrected objective lenses are needed and the setup is more susceptible to imperfections on the retroreflector (dust for instance). Also a correction of the wavefront using the phase conjugate mirror or an adaptive mirror is not possible.

Therefore claim 1 is not anticipated by Muller. The remaining claims depend from claim 1 and therefore they should also be allowable.

Rejection of independent claim 1 in view of Ellis

Ellis et al., U.S. 5,035,476, describes a transmission laser scanning microscope setup with a retroreflector as seen in Figure 3 of Ellis. The retroreflector is only used to reflect the excitation laser light back to the illumination lens 61. Apparently, fluorescence radiation is only collected by lens 61. Accordingly, the retroreflector is only used to reimage the excitation light which is transmitted by the specimen. By contrast, claim 1 recites that “wherein a transmitted excitation light and said fluorescent radiation are reflected by said mirror, **but only said reflected fluorescent radiation along with said fluorescent radiation coming directly from the specimen are reimaged on the detector without the reflected excitation light**” (emphasis added).

Re-imaging of reflected fluorescent radiation on the detector is not taught or suggested by Ellis. The dependent claims should therefore also be allowable by virtue of their dependency.

Anticipation rejection of independent claim 1 in view of Yonezawa.

As discussed above, claim 1 is amended. Applicant respectfully asserts that Yonezawa does not teach or suggest the limitations of amended claim 1 as discussed above in detail.

For example, the mirror 11 does not result in the focal plane limitation being met, and there is no disclosure regarding the following recitation:

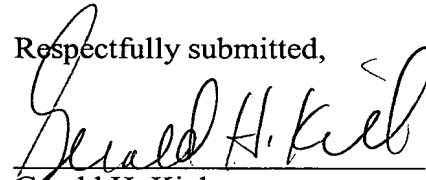
“wherein a transmitted excitation light and said fluorescent radiation are reflected by said mirror, **but only said reflected fluorescent radiation along with said fluorescent radiation coming directly from the specimen are reimaged on the detector without the reflected excitation light**” (emphasis added).

Applicants respectfully note that for the Lanni reference, it is related to a wide field microscopes and are not relevant to the pending claims.

For the similar reasons as discussed above with respect to claim 1, Applicants submit that claims 19 and 20 are also patentable.

Based upon the above amendments and remarks, Applicant respectfully requests reconsideration of this application and its earlier allowance. Should the Examiner feel that a telephone conference with Applicant's attorney would expedite the prosecution of this application, the Examiner is urged to contact him at the number indicated below

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Gerald H. Kiel", is written over a horizontal line.

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